

REMARKS

By this amendment, claims 1-14 and the specification are revised and new claim 15 is added to place this application in condition for allowance. Currently, claims 1-15 are before the Examiner for consideration on their merits.

In review, the Examiner rejected claim 1 under 35 U.S.C. § 112, second paragraph on the grounds that the language "so called replenishment cup" was vague and indefinite. This rejection is overcome by the removal of the objectionable language from claim 1 and clarification that the sealing cup is both for sealing and replenishment. The remaining dependent claims have been amended to be consistent with the change to claim 1. Claim 8 is also amended to correctly identify it as a "sealing and replenishment cup" claim. An incorrectly numbered drawing component is also corrected in the specification.

In the prior art rejection, the Examiner relies principally on two references to reject the claims. The two rejections are addressed below by the headings of the applied prior art. Preceding the rejections is a brief discussion of the invention.

Invention

The invention is directed to a cup that combines sealing and replenishment, hence the claim language of a "sealing and replenishment cup." Sealing is achieved between chambers 5 and 6 when pressure within the downstream chamber 6 is greater than the pressure in the upstream chamber 5. Replenishment or fluid flow from chamber 5 to chamber 6 occurs when the pressure in the upstream chamber 5 is greater than that in the downstream chamber 6. This is accomplished by movement of the dynamic branch as shown in Figure 6. The design of the invention is significant because it is resistant to high pressure in the downstream chamber 6

thus giving effective sealing performance while being sensitive to low pressure differences when pressure is higher in the upstream chamber, thus allowing for replenishment. An integral feature of the invention is the rotation area 21 that allows for movement of the dynamic branch in the replenishment stage, a feature that provides significant benefits in terms of both good sealing and sensitivity to replenishment.

Swiss Patent No. 343,194 (Swiss)

In the rejection of claims 1, 2 and 8, the Examiner contends that Swiss anticipates the claims. This rejection is in error since Swiss does not teach each and every element of claim 1.

In claim 1, the claim calls for a connecting surface that is between the static branch and the core, the connecting surface having a concave shape corresponding to a local reduction in thickness of the static branch and of the core so as to define a rotation area between the static branch and the core. By having this arrangement, the advantages as illustrated in Figure 5 and described on pages 6 and 7 of the specification are realized. That is, perfect effectiveness in sealing is attained when the pressure P_6 exceed the pressure P_5 , and chamber 6 is isolated from chamber 5. In conjunction with optimum sealing, a large sensitivity to replenishment is also realized. When pressure P_5 is slightly greater than P_6 , flow of fluid is permitted from chamber 5 to chamber 6. The flexibility of the rotation area 21 enables the whole formed by the stiffness area 29 and the sealing lip 13 to be displaced in the direction F_1 for replenishment. Again, the invention provides both perfect resistance to strong pressures for sealing and large replenishment sensitivity, all with reduced dimensions.

As stated above, the seal of Swiss does not have every feature of claim 1. More particularly, the concave shape 45 of Swiss is located between the dynamic branch 41 and the core 43. This is opposite to that which is set forth in claim 1; wherein the concave shape is between the static branch and the core. For the Examiner's benefit, attached herewith are GB 860,090 and 860,089 both related to Swiss, with GB 860,090 showing drawings similar to that found in Swiss. As can also be seen from GB 860,090, there is no mention of the combination of static and dynamic branches to achieve both sealing and replenishment.

Since Swiss does not teach the elements of claim 1, the rejection based on 35 U.S.C. § 102(b) must be withdrawn.

Claim 8 is also not taught by Swiss since the notch 48 is not a replenishment notch but merely a space between the two branches 41 and 42.

Further, there is no reason to modify Swiss and arrive at the invention without resort to Applicant's specification as a teaching template. Therefore, any further rejection based on 35 U.S.C. § 103(a) would be improper, particularly since Swiss lacks the combination of the static and dynamic branches and their function in sealing and replenishment.

Gaskill and Genz

The rejection based on Gaskill and Genz is flawed for the simple reason that Gaskill does not teach or suggest a sealing and replenishment cup. While the Examiner alleges that Gaskill teaches all of the features of claim 1 but for the concave shape, Gaskill fails to teach the essence of the invention in terms of both sealing and replenishment. In direct contrast to the sealing and replenishment cup of the invention that allows for flow of fluid in both directions, Gaskill teaches a seal

that is absolutely airtight between the open air and the inside of the pneumatic cylinder or between the chambers of the pneumatic cylinder, i.e., the area of high fluid pressure and the area of low fluid pressure according to the wording of claim 1 thereof. Gaskill lacks more than the concave shape of claim 1; the one way sealing of Gaskill means that this reference lacks the claimed static and dynamic branches, and the rejection is flawed for this reason alone.

Gaskill also lacks a core that defines an annular bead as specified in claim 1. In Gaskill, the core is positioned between the two lips 58 and 60, with a v-shaped annular notch 62 on one end, and an annular opening 68 on the other end; there is no defined annular bead. Consequently, the rejection is lacking for this reason as well.

To summarize, besides the Examiner's admitted absence of a concave shape, Gaskill lacks specific claim elements, e.g., the combination of a dynamic branch and static branch and the annular bead. Therefore, the rejection is flawed even if Genz were combined with Gaskill. The cup of claim 1 would still not be taught if the references were combined since the combination of the static and dynamic branches and annular bead of claim 1 are missing in Gaskill.

Moreover, the mere fact that Genz teaches a seal with a concave surface or notch does not render claim 1 obvious under 35 U.S.C. § 103(a). Claim 1 defines a concave shape between the static branch and core that forms a rotation area for replenishment. No such rotation area is even remotely suggested in Genz. Genz teaches a seal cup intended to avoid any loss of hydraulic fluid and pressure, see col. 4, lines 1-4. Genz adds nothing to Gaskill, and both are deficient in teaching a sealing and replenishment cup having the claimed static and dynamic branches, concave shape forming the rotation area, and annular bead. Therefore, the

combination of Gaskill and Genz still fails to establish a *prima facie* case of obviousness.

The notch of Genz is also not designed to allow for the rotation of the dynamic branch as shown in Figure 5 of the instant application; it is merely intended to enhance the flex of each of the legs.

In light of the foregoing, the rejection of claim 1 based on Gaskill and Genz is flawed and must be withdrawn.

Regarding claims 3 and 7, it is contended that the Examiner's allegation that specifying the thickness of the rotation section is a design choice is improper. There is no rotation area in Gaskill so how could one of skill in the art modify the thickness thereof. While it would be proper to contend that change of the thickness would be the optimization of a result effective variable, the thickness must first be recognized as such a variable. However, there is no basis to draw this conclusion, and this lack of a basis taints the conclusion that one of skill in the art would be motivated to alter the thickness as claimed. Claims 3 and 7 are also patentable over the combined prior art of Gaskill and Genz.

The Examiner has also failed to address the limitation of claim 6 and the converging surfaces of the dynamic branch, and claim 6 cannot be rejected for this reason.

Furthermore, the notches of Gaskill are not replenishment notches but linking notches which allow lubricant to pass from the grease cavity 66 to the inboard area of the seal, see col. 5, lines 1-11. These notches are not intended to allow fluid to flow between the area of high fluid pressure and the area of low fluid pressure and do not act in any manner of replenishment. Since the notches of claim 8 are not found in Gaskill, claim 8 is also patentable over the combination of Gaskill and Genz.

New Claim 15

New claim 15 is submitted to clarify the invention and distinguish over the applied prior art. This claim defines another connection area which is positioned between the concave shape of the connection area and the dynamic branch. Support for this amendment is clearly shown in the Figure 1 and its explanation. None of the applied prior art includes the combination of the two connection areas, one having a concave shape. At most, the Examiner can only allege that either Swiss or Genz have a single connection area of concave shape, and these structures lack the combination of the claimed concave shaped connection area that forms the rotation area and another connection disposed between the concave shaped connection area and the dynamic branch. Thus, claim 15 is separately patentable over the applied prior art.

There is also no basis to conclude that one of skill in the art would provide the two connection areas without using the Applicant's invention as a teaching template. Thus, there is no basis to assert obviousness against claim 15.

Remaining Dependent Claims

Claims 2, 4, 5, and 9-14 are believed to be patentable over the applied prior art based on their respective dependency on claim 1.

Summary

To recap, claim 1 is patentable on the grounds that the applied prior art fails to establish a *prima facie* case of anticipation or obviousness. Further, claims 3, 6,

7, 8, and claim 15 are each believed to be separately patentable over the prior art due to its collective failure to teach the limitations found in these dependent claims.

Accordingly, the Examiner is requested to examine this application in light of this response and pass claims 1-15 onto issuance.

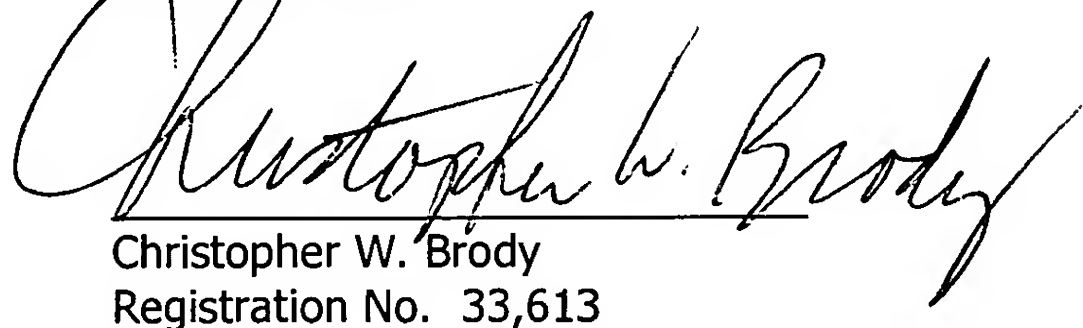
If the Examiner believes that an interview with Applicant's attorney would be helpful in expediting prosecution of this application, the Examiner is invited to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated March 8, 2005.

Again, reconsideration and allowance of this application is respectfully requested.

Applicant petitions for a two month extension of time. Submitted herewith is the petition fee of \$450.00. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,
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